CLAIMS

1. An expression vector comprising:

(a) a first expression cassette comprising a first coding region that encodes a transcriptional activating factor (TAF), said first coding region being positioned under the transcriptional control of a first promoter comprising:

(i) a tissue specific regulatory element (TSRE); and
(ii) a TAF binding site (TBS);

and

(b) a second expression cassette comprising a second coding region that encodes a selected polypeptide, said second coding region being positioned under the transcriptional control of a second promoter comprising:

(i) a TSRE and a TBS; or
(ii) a TBS.

2. The expression vector of claim 1, wherein said vector is a non-viral vector.

3. The expression vector of claim 2, wherein said non-viral vector is comprised within a lipid delivery vehicle.

4. The expression vector of claim 3, wherein said lipid delivery vehicle is a liposome.

5. The expression vector of claim 1, wherein said vector is a viral vector.

6. The expression vector of claim 5, wherein said viral vector is comprised within a viral particle.

7. The expression vector of claim 5, wherein said viral vector is an adenoviral vector, a retroviral vector, a herpesviral vector, a pox virus vector, a polyoma virus vector, an alpha virus vector, or an adeno-associate viral vector.

8. The expression vector of claim 5, wherein said viral vector is a replication-deficient viral vector.

9. The expression vector of claim 8, wherein said replication-deficient viral vector is an adenoviral vector.

10. The expression vector of claim 5, wherein said viral vector is a replication-competent or conditionally replication-competent viral vector.

11. The expression vector of claim 10, wherein said replication-competent or conditionally replication-competent viral vector is an adenoviral vector.

12. The expression vector of claim 1, wherein said TAF is an antibiotic-regulated TAF, a hormone-regulated TAF, an human immunodeficiency virus TAF, or a hepatocye TAF.

13. The expression vector of claim 1, wherein said TSRE is derived from an ARR2PB promoter, a probasin promoter, an osteocalcin promoter, a human kallikrein 2 promoter, a DD3 promoter, a Clara cell secretory protein promoter, a liver-type pyruvate kinase proximal promoter, an apoE promoter, an alcohol dehydrogenase 6 promoter, a MUC-1 promoter, a survivin promoter, a CCR5 promoter a PSA promoter, an AFP promoter, an albumin promoter, or a telomerase promoter.

14. The expression vector of claim 1, wherein said selected polypeptide is a therapeutic polypeptide.

15. The expression vector of claim 14, wherein said therapeutic polypeptide is an anti-cancer polypeptide.

16. The expression vector of claim 15, wherein said anti-cancer polypeptide is a tumor suppressor, and inducer of apoptosis, and cell cycle regulator, a toxin, or an inhibitor of angiogenesis.

17. The expression vector of claim 14, wherein said therapeutic polypeptide is a enzyme, a cytokine, a hormone, a tumor antigen, a human antigen or a pathogen antigen.

18. The expression vector of claim 1, wherein said selected polypeptide is essential for vector replication.

19. The expression vector of claim 18, wherein (a) said vector is an adenoviral vector, and said selected polypeptide is an E1 protein, and E2 protein, an E4 protein, a fiber capside protein, an adenovirus terminal binding protein, an adenovirus polymerase, or (b) said vector is a herpes simplex virus and said selected polypeptide is a herpes simplex virus early or late gene.

20. The expression vector of claim 1, further comprising:

(c) a third expression cassette comprising a third coding region that encodes a first transcriptional silencer (TSI), said third coding region being positioned under the transcriptional control a third promoter comprising:

(i) a TSRE; and
(ii) a TAB;

and

(d) a fourth expression cassette comprising a fourth coding region that encodes a second TSI, said fourth coding region being positioned under the transcriptional control of a fourth promoter that is negatively regulated by said first TSI,

wherein said first, second and third promoters are negatively regulated by said second TSI.

21. A method of expressing a selected polypeptide in a cell of interest comprising contacting said cell with an expression vector comprising:

(a) a first expression cassette comprising a first coding region that encodes a transcriptional activating factor (TAF), said first coding region being positioned under the transcriptional control of a first promoter comprising:

(i) a tissue specific regulatory element (TSRE); and
(ii) a TAF binding site (TBS);

and

(b) a second expression cassette comprising a second coding region that encodes a selected polypeptide, said second coding region being positioned under the transcriptional control of a second promoter comprising:

(i) a TSRE and a TBS; or
(ii) a TBS.

22. The method of claim 21, wherein said vector is a non-viral vector.

23. The method of claim 21, wherein said vector is a viral vector.

24. The method of claim 23, wherein said viral vector is an adenoviral vector, a retroviral vector, a herpesviral vector, a pox virus vector, a polyoma virus vector, an alpha virus vector or an adeno-associate viral vector.

25. The method of claim 23, wherein said viral vector is a replication-deficient viral vector.

26. The method of claim 23, wherein said viral vector is a replication-competent viral vector.

27. The method of claim 23, wherein said viral vector is a conditionally replication-competent viral vector.

28. The method of claim 21, wherein said TAF is an antibiotic-regulated TAF, a hormone-regulated TAF, an human immunodeficiency virus TAF, or a hepatocye TAF.

29. The method of claim 21, wherein said TSRE is derived from an ARR2PB promoter, a probasin promoter, an osteocalcin promoter, a human kallikrein 2 promoter, a DD3 promoter, a Clara cell secretory protein promoter, a liver-type pyruvate kinase proximal promoter, an apoE promoter, an alcohol dehydrogenase 6 promoter, a MUC-1 promoter, a survivin promoter, a CCR5 promoter a PSA promoter, an AFP promoter, an albumin promoter, or a telomerase promoter.

30. The method of claim 21, wherein said expression vector further comprises:

(c) a third expression cassette comprising a third coding region that encodes a first transcriptional silencer (TSI), said third coding region being positioned under the transcriptional control a third promoter comprising:

(i) a TSRE; and
(ii) a TAB;

and

(d) a fourth expression cassette comprising a fourth coding region that encodes a second TSI, said fourth coding region being positioned under the transcriptional control of a fourth promoter that is negatively regulated by said first TSI,

wherein said first, second and third promoters are negatively regulated by said second TSI.

31. A method of treating cancer comprising administering to a subject having cancer an expression vector comprising:

(a) a first expression cassette comprising a first coding region that encodes a transcriptional activating factor (TAF), said first coding region being positioned under the transcriptional control of a first promoter comprising:

(i) a tissue specific regulatory element (TSRE); and

(ii) a TAF binding site (TBS);

and

(b) a second expression cassette comprising a second coding region that encodes an anti-cancer polypeptide, said second coding region being positioned under the transcriptional control of a second promoter comprising:

(i) a TSRE and a TBS; or

(ii) a TBS.

32. The method of claim 31, wherein said vector is a non-viral vector.

33. The method of claim 31, wherein said vector is a viral vector.

34. The method of claim 33, wherein said viral vector is an adenoviral vector, a retroviral vector, a herpesviral vector, a pox virus vector, a polyoma virus vector, an alpha virus vector or an adeno-associate viral vector.

35. The method of claim 33, wherein said viral vector is a replication-deficient viral vector.

36. The method of claim 33, wherein said viral vector is a replication-competent viral vector.

37. The method of claim 33, wherein said viral vector is a conditionally replication-competent viral vector.

38. The method of claim 31, wherein said TAF is an antibiotic-regulated TAF, a hormone-regulated TAF, an human immunodeficiency virus TAF, or a hepatocye TAF.

39. The method of claim 31, wherein said TSRE is derived from an ARR2PB promoter, a probasin promoter, an osteocalcin promoter, a human kallikrein 2 promoter, a DD3 promoter, a Clara cell secretory protein promoter, a liver-type pyruvate kinase proximal

promoter, an apoE promoter, an alcohol dehydrogenase 6 promoter, a MUC-1 promoter, a survivin promoter, a CCR5 promoter a PSA promoter, an AFP promoter, an albumin promoter, or a telomerase promoter.

40. The method of claim 31, wherein said expression vector further comprises a selectable or screenable marker.

41. The method of claim 31, wherein said cancer is breast cancer, ovarian cancer, fallopian tube cancer, cervical cancer, uterine cancer, prostate cancer, testicular cancer, pancreactic cancer, colon cancer, bladder cancer, liver cancer, stomach cancer, lung cancer, lymphoid cancer, brain cancer, thyroid cancer, head & neck cancer, skin cancer or leukemia.

42. The method of claim 31, wherein said expression vector is administered more than once.

43. The method of claim 31, wherein said expression vector is administered intratumorally, into tumor vasculature, local to a tumor, regional to a tumor or systemically.

44. The method of claim 31, wherein said expression vector is administered intravenously, intraarterially, subcutaneously, intramuscularly or into a natural or artificial body cavity.

45. The method of claim 31, wherein said cancer is a recurrent cancer, a metastatic cancer or a drug resistant cancer.

46. The method of claim 31, further comprising administering to said subject one or more distinct cancer therapies.

47. The method of claim 46, wherein said one or more distinct cancer therapies are chemotherapy, radiotherapy, hormonal therapy, immunotherapy, cryotherapy, toxin therapy, surgery or a second gene therapy.

48. The method of claim 46, wherein said expression vector is provided to said subject at the same time as said distinct cancer therapy.

49. The method of claim 46, wherein said expression vector is provided to said subject before or after said distinct cancer therapy.

50. The method of claim 31, wherein said expression vector further comprises:

(c) a third expression cassette comprising a third coding region that encodes a first transcriptional silencer (TSI), said third coding region being positioned under the transcriptional control a third promoter comprising:

(i) a TSRE; and
(ii) a TAB;

and

(d) a fourth expression cassette comprising a fourth coding region that encodes a second TSI, said fourth coding region being positioned under the transcriptional control of a fourth promoter that is negatively regulated by said first TSI,

wherein said first, second and third promoters are negatively regulated by said second TSI.

51. An expression vector comprising:

(a) a first expression cassette comprising a first coding region that encodes a first transcriptional silencer (TSI), said first coding region being positioned under the transcriptional control of a first promoter comprising a TSI binding site (SBS) for a second TSI;

(b) a second expression cassette comprising a second coding region that encodes a transcriptional activating factor (TAF), said second coding region being positioned under the transcriptional control of a second promoter comprising a tissue specific regulatory element (TSRE);

(c) a third expression cassette comprising a third coding region that encodes said second TSI, said third coding region being positioned under the transcriptional control of a third promoter comprising a tissue specific regulatory element (TSRE);

and

(d) a fourth expression cassette comprising a fourth coding region that encodes a selected polypeptide, said fourth coding region being positioned under the transcriptional control of a fourth promoter comprising a TAF binding site.

52. A method of expressing a selected polypeptide in a cell of interest comprising contacting said cell with an expression vector comprising:

(a) a first expression cassette comprising a first coding region that encodes a first transcriptional silencer (TSI), said first coding region being positioned under the transcriptional control of a first promoter comprising a TSI binding site (SBS) for a second TSI;

(b) a second expression cassette comprising a second coding region that encodes a transcriptional activating factor (TAF), said second coding region being positioned under the transcriptional control of a second promoter comprising a tissue specific regulatory element (TSRE);

(c) a third expression cassette comprising a third coding region that encodes said second TSI, said third coding region being positioned under the transcriptional control of a third promoter comprising a tissue specific regulatory element (TSRE);

and

(d) a fourth expression cassette comprising a fourth coding region that encodes a selected polypeptide, said fourth coding region being positioned under the transcriptional control of a fourth promoter comprising a TAF binding site.

53. A method of treating cancer comprising administering to a subject having cancer an expression vector comprising:

(a) a first expression cassette comprising a first coding region that encodes a first transcriptional silencer (TSI), said first coding region being positioned under the transcriptional control of a first promoter comprising a TSI binding site (SBS) for a second TSI;

(b) a second expression cassette comprising a second coding region that encodes a transcriptional activating factor (TAF), said second coding region being positioned under the transcriptional control of a second promoter comprising a tissue specific regulatory element (TSRE);

(c) a third expression cassette comprising a third coding region that encodes said second TSI, said third coding region being positioned under the transcriptional control of a third promoter comprising a tissue specific regulatory element (TSRE);

and

(d) a fourth expression cassette comprising a fourth coding region that encodes an anti-cancer polypeptide, said fourth coding region being positioned under the transcriptional control of a fourth promoter comprising a TAF binding site.